

## CLAIMS

### WHAT IS CLAIMED IS:

1. A local monitor unit for transmitting status information formed of a plurality of pieces of information indicating an operation state of a machine to be monitored to an integrated monitor unit through a computer network, said local monitor unit comprising:

local information getting means for getting the status information from the machine through a first-type computer network;

local information retention means for retaining the status information gotten by said local information getting means; and

local information transmission means for transmitting at least a part of the plurality of pieces of the status information retained in said local information retention means to the integrated monitor unit through a second-type computer network connecting the first-type computer network to the integrated monitor unit.

2. The local monitor unit of claim 1, wherein the first-type computer network is a local area network and the second-type computer network is the Internet.

3. The local monitor unit of claim 1, wherein said local information transmission means comprises:

electronic mail preparation means for converting the status information into a format of electronic mail to which an address of the integrated monitor unit is added; and

electronic mail sending means for sending electronic mail prepared by the electronic mail preparation means to a mail server of the second-type computer network.

4. The local monitor unit of claim 3, wherein said local information getting means gets status information for a plurality of machines, and wherein the electronic mail preparation means of said local information transmission means converts the status information gotten from the plurality of machines into one piece of electronic mail.



5. The local monitor unit of claim 1, wherein said local information getting means gets the status information in a first time period, and wherein said local information transmission means transmits the most recent status information of the machine to the integrated monitor unit in a second time period, the second time period being longer than the first time period.

6. The local monitor unit of claim 5, further comprising state determination means for determining whether the status information gotten by said local information getting means indicates an abnormal state of the machine, and wherein said local information getting means gets the status information in a time period shorter than the first time period only while said state determination means determines that the status information indicates an abnormal state of the machine.

7. The local monitor unit of claim 6, wherein said local information getting means gets the status information of a plurality of machines and, while said state determination means determines that the status information gotten from a specific machine indicates an abnormal state of the specific machine, gets the status information only from the specific machine in a time period shorter than the first time period.

8. The local monitor unit of claim 5, further comprising state determination means for determining whether the status information gotten by said local information getting means indicates an abnormal state of the machine, and wherein when said state determination means starts to determine that the status information indicates an abnormal state of the machine, said local information transmission means transmits the status information to the integrated monitor unit prior to completion of the second time period.

9. The local monitor unit of claim 8, wherein when said state determination means determines that the status information indicates an abnormal state of the machine over a predetermined time, said local information transmission means transmits status information indicating the fact to the integrated monitor unit prior to completion of the second time period.

10. The local monitor unit of claim 1, further comprising display means for displaying a main screen for indicating information concerning every machine connected through the first-type computer network and a subscreen for indicating detailed information concerning a specific machine specified on the main screen.

11. The local monitor unit of claim 1, wherein the machine is a computer system peripheral machine.

12. The local monitor unit of claim 1, wherein the machine is a network printer.

13. A local monitor unit for transmitting status information indicating an operation state of a machine to be monitored to an integrated monitor unit through a computer network, said local monitor unit comprising:

local information getting means for getting the status information from the machine;

electronic mail preparation means for converting the status information gotten by said local information getting means into a format of electronic mail to which an address of the integrated monitor unit is added; and

local information transmission means for sending electronic mail prepared by said electronic mail preparation means to a mail server of the computer network.

14. An integrated monitor unit for receiving status information indicating an operation state of each of a plurality of machines to be monitored, connected to a first-type computer network through a second-type computer network connected to the first-type computer network, said integrated monitor unit comprising:

global information getting means for getting the status information from the plurality of machines;

a database for storing information concerning the plurality of machines;



database management means for updating said database based on the status information gotten by said global information getting means; and  
display means for displaying the information stored on said database.

15. The integrated monitor unit of claim 14, wherein the first-type computer network is a local area network and the second-type computer network is the Internet.

16. The integrated monitor unit of claim 15, wherein said global information getting means comprises:

electronic mail reception means for receiving electronic mail containing status information from a mail server of the second-type computer network; and

extraction means for extracting the status information from the electronic mail received by said electronic mail reception means.

17. The integrated monitor unit of claim 14, wherein said database also stores past status information of the plurality of machines previously gotten by said global information getting means, and wherein said display means displays a main screen for indicating the status information of the plurality of machines connected through the first-type computer network and a subscreen for indicating a history of the status information of a specific machine specified on the main screen.

18. The integrated monitor unit of claim 17, wherein the main screen indicates the most recent status information of each machine.

19. The integrated monitor unit of claim 17, wherein the main screen indicates the status information of machines grouped for each first-type computer network.

20. The integrated monitor unit of claim 17, wherein the status information contains information indicating the remaining amount of a consumable article and wherein the

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subscreen for indicating a history of the status information of a specific machine displays a history of the remaining amounts of the consumable article of the machine.

21. The integrated monitor unit of claim 14, wherein the machine is a computer system peripheral machine.

22. The integrated monitor unit of claim 14, wherein the machine is a network printer.

23. An integrated monitor unit for receiving status information indicating an operation state of each of a plurality of machines to be monitored through a computer network, said integrated monitor unit comprising:

electronic mail reception means for receiving electronic mail containing the status information from a mail server of the computer network;

extraction means for extracting the status information from the electronic mail received by said electronic mail reception means;

a database for storing information concerning the plurality of machines;

database management means for updating said database based on the status information extracted by said extraction means; and

display means for displaying the information stored on said database.

24. An integrated monitor unit for receiving status information indicating an operation state of each of the plurality of machines to be monitored through a computer network, said integrated monitor unit comprising:

global information getting means for getting the status information from the plurality of machines; and

display means for displaying the status information gotten by said global information getting means in installation area units of the plurality of machines.

25. The integrated monitor unit of claim 24, wherein the machines are connected to first-type computer networks, the first-type computer networks connected to each other through a second-type computer network, and wherein said display means displays the status information of the plurality of machines in each first-type computer network to which the plurality of machines are connected.

26. The integrated monitor unit of claim 24, wherein said display means displays the most recent status information of each of the plurality of machines.

27. An integrated monitor unit for receiving status information containing remaining amount information of a consumable article of each of a plurality of machines to be monitored through a computer network, said integrated monitor unit comprising:

global information getting means for periodically getting the status information from the plurality of machines;

a database for storing information concerning the plurality of machines;

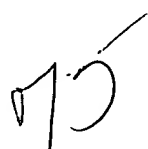
database management means for storing the status information gotten by said global information getting means on said database;

statistical processing means for predicting statistics of the remaining amount of the consumable article based on a plurality of pieces of the status information of each machine stored on said database; and

output means for outputting the remaining amount statistics of the consumable article predicted by said statistical processing means.

28. The integrated monitor unit of claim 27, wherein the plurality of machines are printers and the consumable article is ink, toner, or an ink ribbon.

29. The integrated monitor unit of claim 27, wherein said statistical processing means predicts the remaining amount statistics of the consumable article for a predetermined time period selected from a group of time periods consisting of monthly, weekly, and daily.



30. The integrated monitor unit of claim 27, wherein said database stores the status information of the plurality of machines gotten by said global information getting means, and wherein said output means displays a main screen for indicating the status information of the plurality of machines and a subscreen for indicating the remaining amount statistics of the consumable article of a specific machine specified on the main screen.

31. The integrated monitor unit of claim 27, wherein said output means outputs the remaining amount statistics of the consumable article of the machine in a graph format.

32. The integrated monitor unit of claim 27, wherein said output means outputs a history of the remaining amounts of the consumable article of the machine and the remaining amount statistics of the consumable article of the machine predicted by said statistical processing means in a graph format.

33. A machine monitor system for centrally monitoring status information, said status information indicating an operation state of each of a plurality of machines to be monitored, said machine monitor system comprising:

a local monitor unit being connected to the plurality of machines to be monitored through a first-type computer network for sending status information of the plurality of machines to be monitored to a second-type computer network; and

an integrated monitor unit for receiving the status information sent by said local monitor unit to the second-type computer network.

34. ~~The machine monitor system of claim 33, wherein the status information includes a plurality of pieces of information and said local monitor unit comprises:~~

~~local information getting means for getting the status information from the plurality of machines through the first-type computer network;~~

~~local information retention means for retaining the status information gotten by said local information getting means; and~~

~~local information transmission means for transmitting at least a part of a plurality~~  
of pieces of the status information retained in said local information retention means to said  
integrated monitor unit through the second-type computer network, and wherein  
said integrated monitor unit comprises:  
global information getting means for receiving the status information through the  
second-type computer network;  
a database for storing information concerning the plurality of machines;  
database management means for updating said database based on the status  
information gotten by said global information getting means; and  
~~display means for displaying the information stored on said database.~~

35. The machine monitor system of claim 34, wherein the first-type computer network is a local area network and the second-type computer network is the Internet.

36. The machine monitor system of claim 35, wherein said local information transmission means of said local monitor unit comprises:

electronic mail preparation means for converting the status information into a format of electronic mail to which an address of said integrated monitor unit is added; and

electronic mail sending means for sending electronic mail prepared by the electronic mail preparation means to a mail server of the second-type computer network, and wherein

said global information getting means of said integrated monitor unit comprises:

electronic mail reception means for receiving electronic mail containing the status information from a mail server of the second-type computer network; and

extraction means for extracting the status information from the electronic mail received by said electronic mail reception means.

37. The machine monitor system of claim 34, wherein said local information getting means of said local monitor unit gets the status information in a first time period, and wherein said local information transmission means of said local monitor unit transmits the most



recent status information of each machine to said integrated monitor unit in a second time period, said second time period being longer than the first time period.

38. A machine monitor system for centrally monitoring status information, the status information indicating an operation state of each of a plurality of machines to be monitored, said machine monitor system comprising:

a local monitor unit being connected to the machines to be monitored through a first-type network for converting status information of the plurality of machines to be monitored into a format of electronic mail and sending the electronic mail to a second-type network; and

an integrated monitor unit for receiving the electronic mail sent by said local monitor unit to the second-type network and extracting the status information from the electronic mail.

39. The machine monitor system of claim 38, wherein said local monitor unit comprises:

local information getting means for getting the status information from the plurality of machines;

electronic mail preparation means for converting the status information gotten by said local information getting means into a format of electronic mail to which an address of said integrated monitor unit is added; and

local information transmission means for sending electronic mail prepared by said electronic mail preparation means to a mail server of the second-type computer network, and wherein

said integrated monitor unit comprises:

electronic mail reception means for receiving electronic mail storing the status information from the mail server of the second-type computer network;

extraction means for extracting the status information from the electronic mail received by said electronic mail reception means;

a database for storing information concerning the plurality of machines;

database management means for updating said database based on the status information extracted by said extraction means; and

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display means for displaying the information stored on said database.

40. A method for monitoring a machine comprising:

a local monitor step of getting status information indicating an operation state of each of a plurality of machines to be monitored, a group of said plurality of machines being connected to one of a plurality of first-type computer networks and sending the status information to a second-type computer network connected to the first-type computer network; and

a global monitor step of getting the status information through the second-type computer network;

wherein said local monitor step comprises:

a local information getting step of getting the status information of the plurality of machines;

a local information retention step of retaining the gotten status information; and

a local information transmission step of sending the retained status information to the second-type computer network; and

wherein said global monitor step comprises:

a global information getting step of getting the status information through the second-type computer network;

a step of providing a machine database for storing information concerning the plurality of machines to be monitored;

a database management step of updating said machine database based on the status information;

a step of providing a display; and

a display step of displaying the information stored on said machine database on said display.

41. The method of claim 40, wherein the first-type computer network is a local area network and the second-type computer network is the Internet.

42. The method of claim 41, wherein said local information transmission step includes converting the status information of the machine into a format of electronic mail and sending the electronic mail to the second-type computer network, and wherein said global information getting step includes extracting the status information from the electronic mail received through the second-type computer network.

43. The method of claim 40, wherein said local information getting step includes getting the status information in a first time period, and wherein said local information transmission step includes sending the status information in a second time period different from the first time period.

44. The method of claim 43, wherein said local information getting step includes getting the status information in a time period shorter than the first time period only while the status information indicates an abnormal state of the machine.

45. The method of claim 44, wherein when the status information starts to indicate an abnormal state of the machine, said local information transmission step includes transmitting the status information to the second-type computer network before completion of the second time period.

46. The method of claim 40, wherein said display step comprises a main screen display step of displaying a main screen for listing the machines stored on said database on said display and a subscreen display step of displaying a subscreen for indicating information concerning a specific machine specified on the main screen on said display.

47. The method of claim 40, wherein said display step comprises a main screen display step of displaying a main screen for listing the machines stored on said database on said display and a subscreen display step of displaying a subscreen for indicating a history of the status information of a specific machine specified on the main screen on said display.

48. The method of claim 47, wherein the main screen displays the most recent status information of the machine.

49. The method of claim 47, wherein the main screen indicates the status information of machines grouped for each of the plurality of first-type computer networks.

50. The method of claim 47, wherein the status information contains information indicating the remaining amount of a consumable article and further comprising the step of indicating a history of the status information of a specific machine by displaying a subscreen of a history of the remaining amounts of the consumable article of the machine.

51. A method for monitoring a machine comprising:

a local monitor step of getting status information indicating an operation state of each of a plurality of machines to be monitored and sending the status information to a computer network; and

a global monitor step of getting the status information through the computer network;

wherein said local monitor step comprises:

a local information getting step of getting the status information of the plurality of machines;

an electronic mail preparation step of converting the gotten status information into a format of electronic mail; and

a local information sending step of sending prepared electronic mail to the computer network; and

wherein said global monitor step comprises:

an electronic mail reception step of receiving the electronic mail through the computer network;

an extraction step of extracting the status information from the received electronic mail;

a step of providing a machine database for storing information concerning the plurality of machines to be monitored;

a database management step of updating said machine database based on the status information;

a step of providing a display; and

a display step of displaying the information stored on said machine database on said display.

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52. ~~A method for monitoring a machine comprising:~~  
a data getting step of getting status information indicating an operation state of each of a plurality of machines to be monitored, the plurality of machines being connected to a computer network and the information being gotten through the computer network;  
a step of providing a display; and  
a display step of displaying the status information of the plurality of machines in ~~installation area units of the machines on said display.~~

53. The method of claim 52, wherein the plurality of machines are connected to first-type computer networks connected to each other through a second-type computer network, and wherein said display step includes displaying the status information of the plurality of machines in first-type computer network units to which the plurality of machines are connected.

54. The method of claim 53, wherein said display step includes displaying the most recent status information of each of said plurality of machines.

55. A method for monitoring a machine comprising:  
a data getting step of periodically getting status information containing remaining amount information of a consumable article of each of a plurality of machines to be monitored, the plurality of machines being connected to a computer network;  
a data retention step of retaining the gotten status information;

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a statistical processing step of predicting statistics of the remaining amount of the consumable article based on a plurality of pieces of the retained status information of each of said plurality of machines; and

an output step of outputting the predicted remaining amount statistics of the consumable article.

56. The method of claim 55, wherein the plurality of machines are printers and the consumable article is ink, toner, or an ink ribbon.

57. The method of claim 55, wherein said statistical processing step includes predicting the remaining amount statistics of the consumable article for a predetermined time period selected from a group of time periods consisting of monthly, weekly, and daily.

58. The method of claim 55, wherein the gotten status information of the machines is stored, and wherein said output step comprises a main screen display step of displaying a main screen for indicating the status information of the plurality of machines and a subscreen display step of displaying a subscreen for indicating the remaining amount statistics of the consumable article of a specific machine specified on the main screen.

59. The method of claim 55, wherein said output step includes outputting the remaining amount statistics of the consumable article of the machine in a graph format.

60. The method of claim 55, wherein said output step includes outputting a history of the remaining amounts of the consumable article of the machine and the predicted remaining amount statistics of the consumable article of the machine in a graph format.

61. A computer-readable medium storing thereon a program for causing a computer connected to a plurality of machines to be monitored through a first-type computer network to execute:



a local information getting step of getting status information indicating an operation state of each of the plurality of machines to be monitored;

a local information retention step of retaining the status information; and

a local information transmission step of sending the status information to a second-type computer network.

62. The computer-readable medium of claim 61, wherein said program causes said computer to convert the status information into a format of electronic mail and send the electronic mail to the second-type computer network at said local information transmission step.

63. The computer-readable medium of claim 61, wherein said program causes said computer to output image data of a main screen for indicating information concerning all of the plurality of machines to be monitored which are connected through the first-type computer network and image data of a subscreen for indicating detailed status information of a specific machine specified on the main screen.

64. A computer-readable medium storing a program for causing a computer connected to a machine to be monitored to execute:

a local information getting step of getting status information indicating an operation state of the machine to be monitored;

an electronic mail preparation step of converting the gotten status information into a format of electronic mail; and

a local information transmission step of sending the prepared electronic mail to a computer network.

65. A computer-readable medium storing a program for causing a computer connected to a plurality of machines to be monitored through a computer network to execute:

a global information getting step of getting status information indicating an operation state of each of the plurality of machines to be monitored through the computer network;

~~a database management step of updating a machine database storing monitor~~  
information of the plurality of machines based on the status information; and  
a display step of displaying the information stored on the machine database on a  
~~display~~

66. The computer readable medium of claim 65, wherein said program causes said computer to extract the status information from the electronic mail received through the computer network at said global information getting step.

67. A computer-readable medium storing a program for causing a computer connected to a plurality of machines to be monitored through a computer network to execute:

an electronic mail reception step of receiving electronic mail storing status information indicating an operation state of each of the plurality of machines to be monitored through the computer network;

an extraction step of extracting the status information from the received electronic mail;

a database management step of updating a machine database containing information concerning the plurality of machines to be monitored based on the status information; and

a display step of displaying the information stored on the machine database on a display.

Sub 84 68. A computer-readable medium storing a program for causing a computer connected to a plurality of machines to be monitored through a computer network to execute:

a global information getting step of getting status information indicating an operation state of each of the plurality of machines to be monitored through the computer network; and

a display step of displaying the gotten status information in installation area units of the plurality of machines.



